



MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories



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New updates in this issue:

- **Michigan Surveillance:** Activity decreases slightly overall but influenza B activity increases.
- **National Surveillance:** Influenza activity remains steady but elevated during week 10.
- **Avian Influenza:** H5N1 avian influenza outbreaks reported in poultry in India.

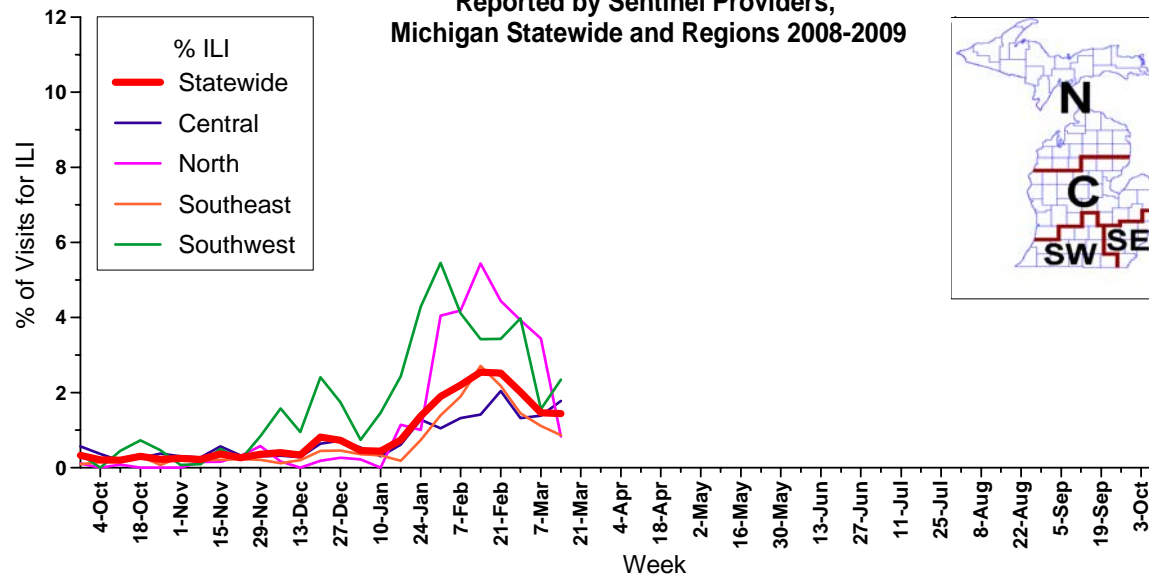
Michigan Disease Surveillance System: The week ending March 14 saw both aggregate flu-like numbers and individual case reports decrease slightly compared to what was seen last week. Individual numbers are comparable to numbers seen this time last year, while aggregate numbers are lower.

Emergency Department Surveillance: Emergency department visits from constitutional complaints dropped slightly, while respiratory complaints held steady this past week. These numbers are comparable to numbers seen this time last year. Four constitutional alerts in the SE(1), SW(1), C(1), and N(1) Influenza Surveillance Regions and seven respiratory alerts in the SE(1), C(5), and N(1) Influenza Surveillance Regions were generated last week.

Over-the-Counter Product Surveillance: Overall, OTC product sales were mostly steady last week. Unpromoted children's electrolytes and chest rub sales decreased very slightly in comparison to the previous week. The remaining indicators saw very little variation in sales. Indicator levels are comparable to those seen at this time last year.

Sentinel Provider Surveillance (as of March 19): During the week ending March 14, 2009, the proportion of visits due to influenza-like illness (ILI) in Michigan is slightly above baseline but declined slightly to 1.4% overall. This represents 101 patient visits due to ILI reported out of 6,988 office visits; 27 sentinel sites provided data for this report. Activity declined in two surveillance regions: Southeast (0.9%) and North (0.8%); and increased in the other two surveillance regions: Central (1.8%) and Southwest (2.3%). Note that these rates may change as additional reports are received.

Percentage of Visits for Influenza-like Illness (ILI)
Reported by Sentinel Providers,
Michigan Statewide and Regions 2008-2009



As part of pandemic influenza preparedness, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.

Laboratory Surveillance (as of March 19): During the past week, 20 new influenza A isolates and 17 new influenza B isolates were identified at the MDCH Bureau of Laboratories (BOL). For the 2008-2009 influenza season, MDCH BOL has identified 240 influenza isolates (followed by Influenza Surveillance Regions of origin):

- 147 A/H1N1 (53SE, 33SW, 20C, 41N)
- 3 A/H3N2 (1SE, 1C, 1N)
- 5 A subtype pending (1SW, 2C, 2N)
- 85 B (20SE, 24SW, 13C, 28N). 9 isolates are B/Florida/4/2006-like (4SE, 1SW, 1C, 3N); 59 are B/Malaysia/2506/2004-like (13SE, 17SW, 7C, 22N); 17 are pending characterization (3SE, 6SW, 5C, 3N).

For the week ending March 14, 13 sentinel labs reported. Influenza A positives are steady to decreasing, with one lab (SW) reporting no influenza A activity. Influenza B positives continue rising, as 6 labs (SE, SW, C) reported increasing influenza B positives and 5 labs (SE, SW, C, N) reported level or sporadic B positives. RSV activity was level to decreasing at the majority of the labs.

***As a reminder, the positive predictive value of influenza rapid tests decreases during times of low influenza prevalence. MDCH suggests that during periods of low influenza activity in your community, all positive rapid tests results be confirmed by sending in a specimen for viral culture; this can be arranged through your local health department.

Michigan Antigenic Characterization (as of March 19): At this time, 24 influenza A/H1N1 isolates have been antigenically characterized by the CDC; results indicate all isolates are A/Brisbane/59/2007-like, which matches the influenza A/H1N1 component of this season's Northern Hemisphere vaccine. One influenza A/H3N2 has been characterized as A/Brisbane/10/2007-like, which matches the A/H3N2 component of this season's vaccine.

At this time, 3 influenza B isolates have been antigenically characterized by the CDC. One influenza B isolate has been characterized as B/Florida/4/2006-like, which matches the influenza B component of this season's vaccine. Two influenza B isolates have been characterized as B/Brisbane/60/2008-like, which does not match this season's vaccine, but is a recommended component of the 2009-2010 vaccine.

Michigan Antiviral Resistance Data (as of March 19): 24 influenza A/H1N1 viruses from the MDCH Bureau of Laboratories have been tested for antiviral resistance at CDC for the 2008-2009 season. All 24 viruses were resistant to oseltamivir (Tamiflu®) and sensitive to zanamivir, amantadine and rimantadine. These viruses were collected in the SE(11), SW(12) and N(1) Influenza Surveillance Regions. One influenza A/H3N2, collected in the C Region, has been tested for antiviral resistance; that virus was resistant to the adamantanes (amantadine and rimantadine) and sensitive to oseltamivir and zanamivir. Two influenza B isolates, collected in the SW Region, have been tested for antiviral resistance; these viruses were sensitive to oseltamivir and zanamivir (the adamantanes are not effective against B viruses).

Antiviral resistance testing often takes several weeks to complete, and thus cannot be used to guide treatment of individual patients. However, CDC has made interim recommendations regarding the use of antiviral medications for the treatment of influenza and for prophylaxis. This guidance is available at <http://www2a.cdc.gov/HAN/ArchiveSys/ViewMsgV.asp?AlertNum=00279>.

Influenza-Associated Pediatric Mortality (as of March 19): One influenza-associated pediatric mortality due to influenza A (SW) has been reported to MDCH for the 2008-2009 influenza season.

***The CDC has asked all states to collect information on any pediatric death associated with influenza infection. This includes not only any death in a child (<18 years) resulting from a compatible illness confirmed to be influenza by an appropriate diagnostic test, but also any unexplained death with evidence of an infectious process in a child. Please immediately call MDCH to ensure that proper clinical specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Congregate Settings Outbreaks (as of March 19): Three congregated setting outbreaks (1C, 2N) due to influenza (1 influenza A, 1 influenza B, 1 untyped) have been reported to MDCH for the 2008-09 influenza season.

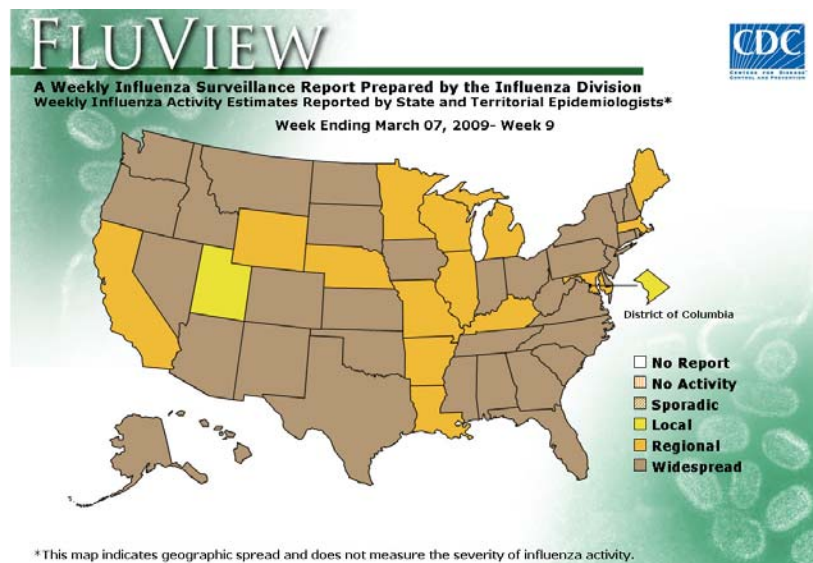
National (CDC [edited], March 13): During week 9 (March 1-7, 2009), influenza activity in the United States remained high, but is at approximately the same level as in the previous week. One thousand two hundred fifty-two (23.0%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. Five influenza-associated pediatric deaths were reported. The proportion of outpatient visits for influenza-like illness (ILI) was above the national baseline. ILI increased nationally and in four of the nine regions compared to the previous week. All nine surveillance regions reported ILI above their region-specific baselines. Thirty-five states reported widespread influenza activity, 14 states reported regional activity; the District of Columbia and one state reported local influenza activity; and Puerto Rico reported sporadic influenza activity.

Since October 1, 2008, 422 influenza A (H1N1), 64 influenza A (H3N2), and 200 influenza B viruses have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). Four hundred twenty-two influenza A (H1N1) and 61 influenza A (H3N2) viruses have been tested for resistance to the adamantanes (amantadine and rimantadine). The results of antiviral resistance testing performed on these viruses are summarized in the table below.

| | Isolates tested (n) | Resistant Viruses, Number (%) | | Isolates tested (n) | Resistant Viruses, Number (%) |
|---------------------------|---------------------|-------------------------------|-----------|---------------------|-------------------------------|
| | | Oseltamivir | Zanamivir | | |
| Influenza A (H1N1) | 422 | 417 (98.8%) | 0 (0) | 422 | 3 (0.7%) |
| Influenza A (H3N2) | 64 | 0 (0) | 0 (0) | 61 | 61 (100%) |
| Influenza B | 200 | 0 (0) | 0 (0) | N/A* | N/A* |

*The adamantanes (amantadine and rimantadine) are not effective against influenza B viruses.

To access the entire CDC weekly surveillance report throughout the influenza season, visit <http://www.cdc.gov/flu/weekly/fluactivity.htm>



*This map indicates geographic spread and does not measure the severity of influenza activity.

International (WHO [edited], March 19): During the weeks 9-10, the level of influenza activity increased in some parts of the world while it declined in other countries. Influenza activity has continued to decline in western Europe and is below baseline levels in most countries. For many of the remaining countries activity has shown relatively little change compared to the previous fortnight although increased activity has been reported in some central and eastern European countries as well as in a large part of the Russian Federation. While influenza A (H3) continues to be the dominant influenza virus circulating in Europe, an increasing number of countries reported influenza B as the dominant or co-dominant virus

type. In Canada and the United States of America, influenza activity continued to increase with both influenza A and B viruses circulating.

Sporadic influenza activity was observed in Austria (H3,B), Denmark (H1,H3,B), China (H1,H3,B), Kazakhstan (A,B), Mongolia (H1), Poland (B), Portugal (H3), Spain (B), Sri Lanka, Tunisia (H3,B), and United Kingdom of Great Britain and Northern Ireland (H1,H3,B).

Argentina, Bulgaria, Cameroon and Malta reported no activity.

To access the entire report, visit <http://www.who.int/csr/disease/influenza/update/en/>

MDCH reported **REGIONAL INFLUENZA ACTIVITY** to the CDC for the week ending March 14, 2009.

For stakeholders interested in additional information regarding influenza vaccination and education, the MDCH publication *Michigan FluBytes* is available online at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html. *FluBytes* is published weekly during the influenza season.

End of Seasonal Report

Avian Influenza Activity

WHO Pandemic Phase: Phase 3 - Human infection(s) with a new subtype, but no human-to-human spread or rare instances of spread to a close contact.

International, Poultry (Sindh Today, March 14): With a fresh outbreak of avian flu reported from West Bengal's Darjeeling district [India], the administration Saturday evening began three days of culling poultry.

"Culling will take place within a three kilometre radius of Naxalbari. The areas from where avian flu was detected are Panighata and Chengapani," sub-divisional officer Dibyendu Das said in Kurseong, 480 km from Kolkata.

In the last 15 days, around 150 birds died due to avian flu, Das told reporters.

Buying and selling of chicken have been banned within 10 km of the affected area to avoid further spread of the disease. About 14,000-15,000 chicken will be culled.

The samples of the affected birds were tested at Bhopal's High Security Animal Diseases Laboratory, which confirmed avian flu.

International, Poultry (Samay Live, March 14): Culling operations will begin at Barachenga village in Kurseong sub-division [India] today after samples tested positive for bird-flu, official sources said.

Culling operations will begin this evening, Kurseong SDO Dwibbendu Das told newsmen.

"Twenty teams have been engaged to cull around 11,000 birds. A control room has been set up at Pintal village, near here", he said.

Poultry within a three-km radius area from the village will be culled and eggs will be destroyed, he said.

Chicken death was reported from the village under Panighata block on Thursday following which samples were sent to HSDL laboratory in Bhopal for testing which confirmed the outbreak of the disease this morning.

Areas in the foothills near the plains of Siliguri are the ones which are mainly affected, Das said.

Bird-flu was detected in this sub-division mainly in and around Sukna area a month ago. Sale and trade of poultry and its products were still banned in the area.

Michigan Wild Bird Surveillance (USDA, as of March 19): For the 2008 testing season, 2105 Michigan samples have been taken so far, comprised of 327 live birds, 1218 hunter-killed birds, 35 morbidity or mortality samples and 525 environmental samples.

H5N1 subtype HPAI has not been recovered from any Michigan samples tested to date, or from the 77,769 birds or environmental samples tested nationwide for the 2008 testing season, which will run from April 1, 2008 - March 31, 2009. For more information, visit the National HPAI Early Detection Data System website at <http://wildlifedisease.nh.gov/ai/>.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at <http://www.michigan.gov/emergingdiseases>.

Please contact Susan Vagasky at VagaskyS@Michigan.gov with any questions regarding this newsletter or to be added to the weekly electronic mailing list.

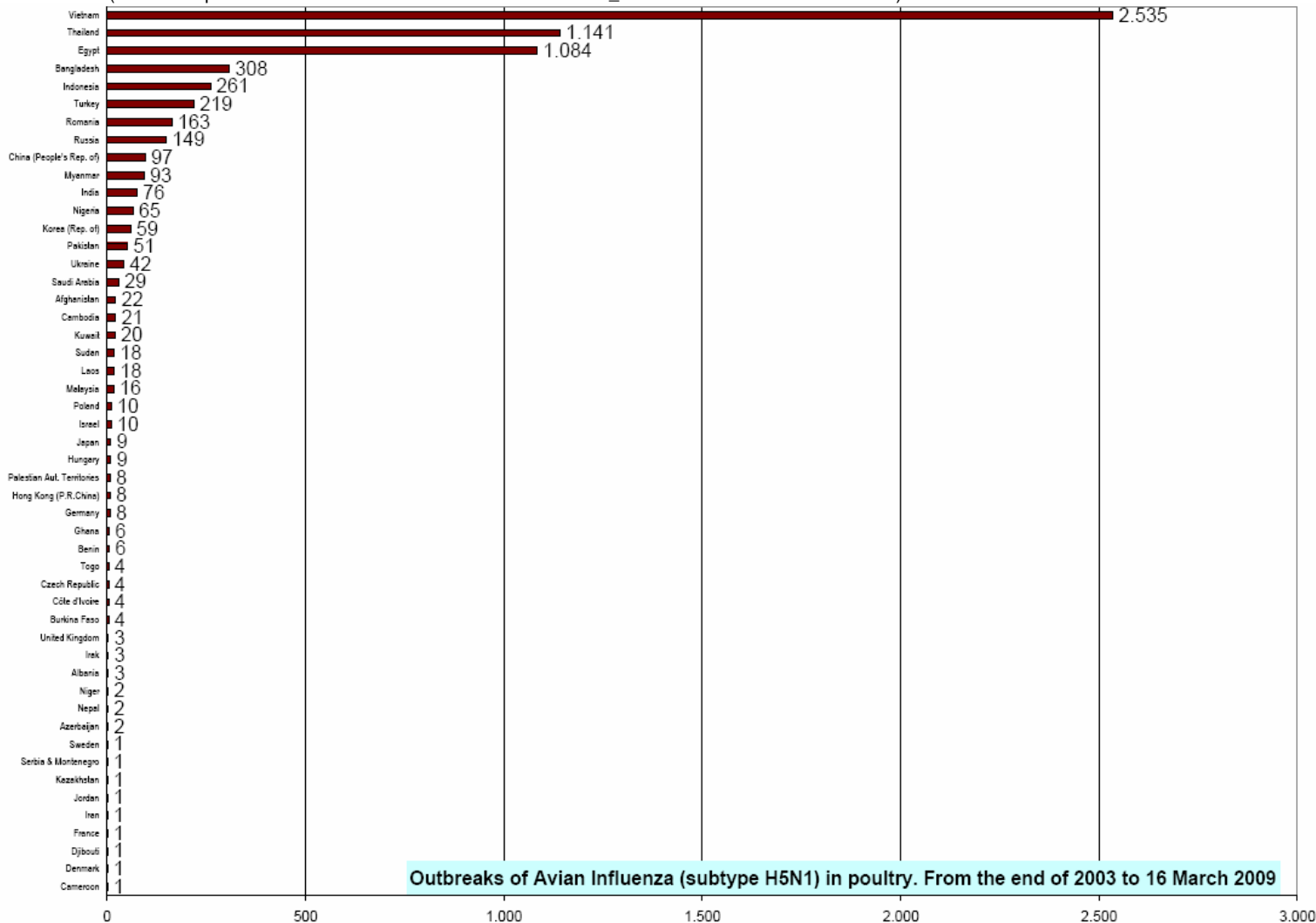
Contributors

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Table 1. H5N1 Influenza in Poultry (Outbreaks up to March 16, 2009)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 3/18/09)



Outbreaks of Avian Influenza (subtype H5N1) in poultry. From the end of 2003 to 16 March 2009

Table 2. H5N1 Influenza in Humans (Cases up to March 11, 2009)

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_03_11/en/index.html Downloaded 3/11/2009)

Cumulative number of lab-confirmed human cases reported to WHO. Total number of cases includes deaths.

| Country | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 | | Total | |
|----------------------------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| | cases | deaths | cases | deaths | cases | deaths | cases | deaths | cases | deaths | cases | deaths | cases | deaths | cases | deaths |
| Azerbaijan | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 5 |
| Bangladesh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| Cambodia | 0 | 0 | 0 | 0 | 4 | 4 | 2 | 2 | 1 | 1 | 1 | 0 | 0 | 0 | 8 | 7 |
| China | 1 | 1 | 0 | 0 | 8 | 5 | 13 | 8 | 5 | 3 | 4 | 4 | 7 | 4 | 38 | 25 |
| Djibouti | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Egypt | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 10 | 25 | 9 | 8 | 4 | 7 | 0 | 58 | 23 |
| Indonesia | 0 | 0 | 0 | 0 | 20 | 13 | 55 | 45 | 42 | 37 | 24 | 20 | 0 | 0 | 141 | 115 |
| Iraq | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 |
| Lao People's Democratic Republic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 |
| Myanmar | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Nigeria | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| Pakistan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 3 | 1 |
| Thailand | 0 | 0 | 17 | 12 | 5 | 2 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 17 |
| Turkey | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 4 |
| Viet Nam | 3 | 3 | 29 | 20 | 61 | 19 | 0 | 0 | 8 | 5 | 6 | 5 | 2 | 2 | 109 | 54 |
| Total | 4 | 4 | 46 | 32 | 98 | 43 | 115 | 79 | 88 | 59 | 44 | 33 | 16 | 6 | 411 | 256 |